

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 5 1. A method of joining coiled sucker rod in the field, comprising the steps of:  
placing abutting ends of sucker rod in face to face relation;  
positioning a gas burner in proximity to the abutting ends  
10 and heating the abutting ends with a hydrocarbon gas flame while applying axial pressure to force the abutting ends together;  
continuing heating and applying pressure until a weld is formed with a bulge formed above the weld, the bulge having  
15 the height at least one third of the diameter of the sucker rod being welded; and  
keeping the pressure constant until the weld cools.
- 20 2. The method as defined in Claim 1, further including a preparatory step of preparing the abutting ends of the sucker rod to create clean, smooth and parallel faces using a saw, located directly on the welding machine, and by cutting the ends of said rods already clamped in the welding  
25 jaws .
3. The method as defined in Claim 1, further including a preparatory step of preheating the abutting ends of the sucker rod.
- 30 4. The method as defined in Claim 3, the abutting ends of the sucker rod being preheated for a length depending on ambient temperature and ranging from two to ten inches each.

5. The method as defined in Claim 3, the sucker rod being preheated to temperature which will vary depending on ambient temperature between 150 and 300 degrees Celsius.
- 5 6. The method as defined in Claim 1, the sucker rod being heated to a temperature at which the surface of the welded rods begins to melt.
- 10 7. The method as defined in Claim 1, the pressure being at least 17kg/mm<sup>2</sup> of the crossection of the welded rod.
8. The method as defined in claim 1, including the further step of, immediately after welding, enclosing the weld  
15 in thermal insulation thereby slowing down the cooling rate of the weld.
9. The method as defined in claim 1, including the further step of heat-treatment the weld after welding, the weld  
20 being allowed to cool to ambient temperature and than being reheated up to temperature between 570°C and 600°C and kept at this temperature for approximately 20 minutes, then allowed to cool slowly to ambient temperature.
- 25 10. The method as defined in Claim 1, the height of the bulge being one third of the diameter of the welded sucker rod or greater.
- 30 11. A method of joining coiled sucker rod in the field, comprising the steps of:  
butt-welding a sucker rod, comprised of the steps of preparing the ends of sucker rods or attachments to said sucker rod using the tools which will assure creation of

clean, smooth, and parallel faces of said rods; bringing  
said faces in full contact; preheating a minimum length  
of 2 inches of the end of each of said rods up to 300°C  
with hydrocarbon gas; positioning the gas burner over  
5 the abutting ends of said rods and starting the heating  
of said rod ends with a hydrocarbon gas flame, up to  
temperature at which the surface of the welded rods  
begins to melt; applying pressure equal to or higher  
than 17kg/mm<sup>2</sup> of the crosssection of the welded rod during  
10 welding, while continuing heating; discontinuing heating  
when the height of the bulge formed above the weld has  
reached at least one third of the diameter of the welded  
rod, while keeping said pressure at the constant level  
until the joint cools.